PATENT CLAIMS

1. Device for broadband transmission of digital signals between at least one first unit and at least one second unit mobile along a predetermined path relative to said first unit, in particular via non-contacting rotary joints, said first unit comprising:
   - a data source for generating a serial data stream;
   - a transmitter for generating electrical signals from said serial data stream from said data source;
   - a transmitter conductor array for conducting said electrical signals generated by said transmitter;

   and said second unit comprising:
   - a receiving antenna for tapping electrical signals in the near field of said transmitter conductor array;
   - a receiver for receiving the signals tapped by said receiving antenna;
   - a data sink for subsequent processing of the signals received by said receiver;

   characterized in that a controller is provided for controlling said data stream by signalling a desired value of data rate or data package size to said data source or said transmitter.

2. Device for broadband transmission of digital signals between at least one first unit and at least one second unit mobile along a predetermined path relative to said first unit, said first unit comprising:
   - a data source for generating a serial data stream;
   - a transmitter for generating electrical signals from said serial data stream from said data source;
   - a transmitter conductor array for conducting said electrical signals generated by said transmitter;

   and said second unit comprising:

- a receiving antenna for tapping electrical signals in the near field of said transmitter conductor array;
- a receiver for receiving the signals tapped by said receiving antenna;
- a data sink for subsequent processing of the signals received by said receiver;

characterized in that a controller is provided between said data source and said transmitter for controlling said data stream by converting a data rate or data package size of said data source to a desired value of data rate or package size.

3. Device according to Claim 1 or 2,

characterized in that said controller comprises means for storing data and for outputting the data at different data rates to said transmitter.

4. Device according to Claim 1 or 2,

characterized in that the desired value is predetermined by a desired-value generator according to actual transmission characteristics of a data transmission path between said transmitter and said receiver or according to another measurable value.

5. Device according to Claim 1 or 2,

characterized in that an analyzer means is disposed between said receiver and said data sink, that said analyzer means comprises additional means for signaling incorrectly transmitted data to said controller by means of an additionally provided transmission channel, and that said controller means (7) is designed for repeating incorrectly received data packages upon request by said analyzer means.

6 Device according to Claim 1 or 2,

charact rized in that a micro controller is provided for controlling and diagnosing the device.

7. Device according to Claim 1 or 2,

    characterized in that the device is self-learning and adapts itself dynamically to respective conditions of operation.

8. Method of broadband transmission of digital signals between at least one first unit and at least one second unit mobile along a predetermined path relative to said first unit, in particular via non-contacting rotary joints, said first unit comprising:
    - a data source for generating a serial data stream;
    - a transmitter for generating electrical signals from said serial data stream from said data source;
    - a transmitter conductor array for conducting said electrical signals generated by said transmitter;

    and said second unit comprising:
    - a receiving antenna for tapping electrical signals in the near field of said transmitter conductor array;
    - a receiver for receiving the signals tapped by said receiving antenna;
    - a data sink for subsequent processing of the signals received by said receiver;

    characterized in that a controller is provided for controlling said data stream by signalling a desired value of data rate or data package size to said data source or said transmitter.